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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/551,436

07/17/2006

Dov Avni

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EXAMINER

DIEP, NHON THANH

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2621

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/551,436	Applicant(s) AVNI ET AL.	
	Examiner Nhon T. Diep	Art Unit 2621	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 May 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 43-45, 47 and 49-57 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 43-45, 47 and 49-57 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 9/29/2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>5/30/08</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 43-45, 49-53 and 55 are rejected under 35 U.S.C. 103(a) as being unpatentable over Saito et al (US 6,184,922 B1), in view of Fukuhara et al (US 6,501,862 B1), Honda et al (US 2004/0225223 A1), and Kim et al (US 6,314,211).

As for claim 43, applicants claim “an in vivo device...”. In the tenth edition of Merriam-Webster’s Dictionary, the term in vivo is defined as “in the living body of a plant or animal”, while the definition of an endoscope is “a means for viewing the interior of a hollow organ”. The examiner would like to point out that an in vivo device and an endoscope are one in the same. That to say, each of the above two devices are used to view the interior of a body. Saito et al discloses a system for reconstructing an image, the system comprising: a controller to: receive selected image data from an in-vivo device (fig. 2, el. 6 and col. 7, ln 36-40); pre-process the selected image data; wherein the controller is to post process the interpolated image data (fig. 14, el. 337) as specified in claim 43; and wherein the controller is to generate reconstructed data based on said selected image data (fig. 14, el 338) as specified in claim 49; an in-vivo imager to receive a plurality of input image data corresponding to an image and to produce said selected image data (fig. 2, el. 32) as specified in claim 51 and a transmitter to transmit

said selected image data (fig. 3, el. 54 and its output) as specified in claim 52. It is noted that Saito et al does not particularly disclose that:

a. pre-process the selected image data by applying error correction, gradient evaluation or detecting edges; and the controller is to receive the selected image data from a swallowable capsule as specified in claim 50;

b. the selected image data has been compressed using a dilation pattern and the reconstruction process involves interpolation, linear interpolation or produce additional image data as specified in claims 43, 44 and 45; and wherein the dilation pattern used to compress the selected image data comprises selecting every n'th pixel in each row for transmission as specified in claim 53; wherein $n = 4$ as specified in claim 55; and

c. the step of post process the interpolated image data involving the usage of a median filter as specified in claim 43.

With regard to a: Honda et al, in fig. 1, paragraphs 0004 and 0052, teaches the using of a swallowable capsule to take images inside a living body and a video signal processing function for image data generation, a transmission signal generating function that performs mixing of a video signal and a sync signal, affixing of an error correction code, etc. And, therefore, it would have been obvious to one of ordinary skilled in the art at the time the invention was made to modify the system of Saito et al by using an endoscope or an in-vivo device to image the intestinal of a living body by way of non-invasive and less obstructive procedures and further more, applying error correction in pre-processing selected images to prevent error and to obtain better images.

With regard to b: First of all dilution is interpreted as the process of making less concentrated, and Fukuhara et al, in fig. 9, teaches (a) an input picture as an original picture, that is an original picture 100 shown in FIG. 6, is shown at the left end. An initial picture (initial decoded picture or a drawing texture) 107 is shown at the center in this figure, the texture of the original picture is downsampled (thinned) by 1/4 both vertically and horizontally, thus by 1/16 as a whole. Other methods will be explained subsequently. The above is the processing by an encoder (this process is considered as the claim's compressed by dilution pattern of claim 43 and wherein the dilution pattern used to compress the selected image data comprises selecting every n'th pixel in each row for transmission as specified in claim 53 and wherein $n = 4$ as specified in claim 55) and (b) the process of encoding original image by decimating and then performing interpolation to reconstruct encoded image to obtain original image and that interpolation of image produces additional image data. Therefore, it would have been obvious to one of ordinary skilled in the art at the time the invention was made to encode original image by decimating and to reconstructing encoded image by interpolation as taught by Fukuhara et al. Doing so would help to reduce bandwidth for transmission while simplifying the encoding process.

With regard to c: Kim et al teaches "in the step of post-processing, which performs a predetermined post-process together with the composite image interpolator, median filter is used to compensate for image deteriorated in the edge region. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Sato et al by applying median filter in the

step of post processing as taught by Kim et al. Doing so would help to improve the quality of the new image (column 6, lines 42-53).

3. Claim 47 is rejected under 35 U.S.C. 103(a) as being unpatentable over Saito et al (US 6,184,922 B1), in view of Fukuhara et al (US 6,501,862 B1), Honda et al (US 2004/0225223 A1) and Kim et al and further in view of He et al (US 6,600,517 B1).

As applied to claim 43 above, it is noted that the combination does not particularly disclose that the controller is to post process by a method selected from a group including: image sharpening, color suppression, intensity adjustment, convolution and applying a median filter as specified in claim 47. He et al teaches Post-processing circuitry is capable of carrying out several different types of video signal processing. Exemplary video signal processing functions performed by post-processing circuitry may include: noise reduction algorithms, color correction, scaling, scan-rate conversion, adaptive feature enhancement, and other adaptive object based algorithms. In an advantageous embodiment, post-processing circuitry 140 further comprises image sharpening circuitry capable of performing noise level adaptive sharpness enhancement (fig. 5 and col. 4, ln. 64 - col. 5, ln. 7). And, therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of the above combination by applying the image sharpening circuitry to enhance resultant images.

4. Claim 54 is rejected under 35 U.S.C. 103(a) as being unpatentable over Saito et al (US 6,184,922 B1), in view of Fukuhara et al (US 6,501,862 B1), Honda et al (US 2004/0225223 A1) and Kim et al and further in view of Hattori et al (US 5,032,913).

As applied to claim 53 above, it is noted that the combination does not particularly disclose that wherein all pixels chosen in any row represent the same color as specified in claim 54. Hattori et al teaches in the case, since the object image is displayed using only one color component, (e.g., the monochromatic signal G) (column 7, lines 14-16). And, therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of the above combination by displaying only monochromatic signal as taught by Hattori et al. Doing so would help to obtain distinct images.

5. Claims 56-57 are rejected under 35 U.S.C. 103(a) as being unpatentable over Saito et al (US 6,184,922 B1), in view of Fukuhara et al (US 6,501,862 B1), Honda et al (US 2004/0225223 A1) and Kim et al and further in view of Saitou (US 4,834,070).

As applied to claim 43 above, it is noted that the combination does not particularly disclose that wherein the dilation pattern used to compress the selected image data is determined based on operating conditions of the in vivo device; and wherein the operating conditions are selected from a group consisting of: position of the in vivo device, pH, temperature, ambient lighting or color conditions as specified in claims 56-57. Saitou teaches the thinning of image signals based on the brightness threshold (col. 2, ln. 47-68). And, therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of the combination by thinning of image signals based on the brightness threshold as taught by Saitou. Doing so would help to obtain sharper image.

Conclusion

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nhon T. Diep whose telephone number is 571-272-7328. The examiner can normally be reached on m-f.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mehrdad Dastouri can be reached on 571-272-7418. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

ND

/Nhon T Diep/
Primary Examiner, Art Unit 2621